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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/564,659	07/17/2006	Wilfried Bien	3926-235	9682

30448 7590 02/01/2008
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P.O. BOX 3188
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EXAMINER

COLEMAN, KEITH A

ART UNIT	PAPER NUMBER
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3747

MAIL DATE	DELIVERY MODE
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02/01/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/564,659

Applicant(s)

BIEN ET AL.

Examiner

KEITH COLEMAN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/17/2006</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 5, 4, 6, 7, 8, 9, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Takami et al. (US Patent No. 5,732,671).

With regards to claim 1, the patent to Takami et al. discloses a flange arrangement of an engine cylinder head (See Figure 21), characterized in that the flange arrangement has at least two single-piece individual flanges (i.e. cylinder liners 15-18, Col. 15, Line 54), which bear against one another with in each case at least one peripheral region (i.e. butting surface 54 and 56, Col. 11, Lines 56. Figures 21-23) overlapping, in such a manner that in the overlapping area their securing bores (i.e. space 77 and engagement grove 74, Col. 15, Lines 20-29, Figure 22 and 23) for attaching them to the cylinder head are aligned (See Figure 20).

With regards to claim 3, the patent to Takami et al. discloses the individual flange (15-18) has a wall thickness which is at least substantially uniform over its entire extent (Col. 2, Lines 5-6), and in that the overlapping first peripheral region (56) of the

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individual flange (16), which covers the corresponding second peripheral region (54) of another individual flange (15, See Figures 20-23) toward the side (i.e. in-between cylinders) remote from the cylinder head, is offset toward the side (i.e. the side of the cylinder bores) remote from the cylinder head with respect to its overlapping second peripheral region (54), which covers the corresponding first peripheral region (56) of another individual flange (15) toward the side facing the cylinder head.

With regards to claim 4, the patent to Takami et al. discloses the passage opening (21 or 22, Col. 3, Lines 59-61) in the individual flange (15 or 16, respectively) has an encircling rim (outer cylindrical surface 20, appears to be a rim in Figure 20, Col. 3, Line 62) on the side (i.e. outside the cylinder head) remote from the cylinder head (rim 20 on flange 15 is remote from cylinder axis L2 near flange 16).

With regards to claim 5, the patent to Takami et al. discloses the individual flange (16 or 15), on the edge side outside the overlap zone (i.e. zone in-between 56 or 54, respectively), has a rim (i.e. the overlapping edges) which projects perpendicularly toward the side (i.e. outside the cylinder head and perpendicular to the vertical center axis L1, L2, L3, of the cylinder) remote from the cylinder head (See Figures 20 and 21).

With regards to claim 6, the patent to Takami et al. discloses the individual flange (15), on the edge side of the circumferential region (the overlapping area 54 and 56) which forms a cover toward the side (See Figure 21) remote from the cylinder head, has

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a reinforcing rib (i.e. projection 75, Col. 15, Line 58) which projects in the same direction (See Figure 23).

With regards to claim 7, the patent to Takami et al. discloses the individual flange (15), on the edge side, has a rim (the outer portion of 20) which faces away from the cylinder head (i.e. the radial outer edge faces away from the cylinder chamber) and runs continuously all the way around with the exception of the second peripheral region (54) which is covered by another individual flange (16) toward the side (i.e. the left side covered by 56) remote from the cylinder head.

With regards to claim 8, the patent to Takami et al. discloses a flange (15 or 16) arrangement of an engine cylinder head, characterized in that the flange arrangement (12) is composed of single-piece individual flanges (15-18), and in that the individual flanges (15-18) are placed against one another with in each case at least one peripheral region (54 and 56) overlapping, in such a manner that the securing bores (77 and 74) which are formed in the peripheral region (54 and 56) of the individual flanges (15 and 16, See Figure 22) are aligned with one another.

With regards to claim 9, the patent to Takami et al. discloses the outer contour (20), the securing bores (77 and 74) and the passage opening (19) of the individual flanges (15 and 16) are produced by punching (i.e. isostatic press, Col. 5, Lines 1-3).

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With regards to claim 13, the patent to Takami et al. discloses that the individual flanges (15 and 16) are deep-drawn (i.e. isostatic pressing, Col. 5, Lines 1-3) from a planar sheet-metal blank (i.e. aluminum, Col. 6, Line 42), with an overlapping first peripheral region (56) of the individual flange (16), which covers the corresponding second peripheral region (54) of another individual flange (15) toward the side (i.e. in-between cylinder bores, See Figure 20) remote from the cylinder head, being formed so as to be offset toward the side (i.e. in between cylinder bores) remote from the cylinder head with respect to its overlapping second peripheral region (56), which covers the corresponding first peripheral region (54) of another individual flange (17) toward the side facing the cylinder head.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2, 10, 11, 12, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takami et al. (US Patent No. 5,732,671).

With regards to claims 2 and 10, the patent to Takami et al. discloses all the limitations of the claimed subject matter including that the individual flanges (i.e. cylinder liner 15-18) have a shoulder (extending and overlapping portions 54 and 56) and comprises the location of their peripheral regions (See Figure 20) which overlap, the individual flanges (15 and 16) bearing against one another by means of their shoulders (See Figure 20) except positively disclosing a reduction in wall thickness for the disclosed embodiment. Since in Figures 16 and 17 Takami discloses a connection between overlapping areas 54 and 56 being a lesser thickness than the cylinder liner holes 21-24 (Col. 3, Lines 60-61), it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the individual flanges in

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Figures 21-23 of Takami et al. with wherein a reduction in wall thickness for the connecting areas, in order to create an uniform wall thickness (Col. 2, Lines 5-6 from Takami et al.)

With regards to claim 12, the patent to Takami et al. discloses all the limitations of the claimed subject matter except positively disclosing the cutting of the flange takes place in a final punching operation, in which the flange contour is precision-punched after it has been rough-prepunched. Since Takami et al. explicitly states using numerous manufacturing techniques, including cold isostatic pressing on Col. 5, Lines 1-3 in addition to cutting on Col. 5, Lines 7-9 and further using precision machining for resurfacing and produce projections on Col. 8, Lines 42-45, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the manufacturing process of Takami et al. with wherein the cutting of the flange takes place in a final punching operation, in which the flange contour is precision-punched after it has been rough-prepunched, in order to manufacture the cylinder liner within engineering parameters (i.e. dimensions and structural integrity, Col. 5, Lines 8-14 from Takami et al.)

With regards to claim 14, the patent to Takami et al. discloses all the limitations of the claimed subject matter except positively disclosing after the deep-drawing of the flange the securing bores and the passage opening are punched out. Since Takami et al. explicitly states using numerous manufacturing techniques, including cold isostatic

pressing on Col. 5, Lines 1-3 in addition to cutting on Col. 5, Lines 7-9 and further using precision machining for resurfacing and produce projections on Col. 8, Lines 42-45, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the manufacturing process of Takami et al. with wherein after the deep-drawing of the flange the securing bores and the passage opening are punched out., in order to produce the cylinder liner within engineering parameters (i.e. dimensions and structural integrity, Col. 5, Lines 8-14 from Takami et al.)

With regards to claim 15, the patent to Takami et al. discloses all the limitations of the claimed subject matter including a rim (20) which faces toward the side (i.e. the left side of the cylinder opening) remote from the cylinder head except positively disclosing the rim is formed by the deep-drawing operation at the same time as the first peripheral region on the edge side of the flange and around the passage opening is being formed.

Since Takami et al. explicitly states using numerous manufacturing techniques, including cold isostatic pressing on Col. 5, Lines 1-3 in addition to cutting on Col. 5, Lines 7-9 and further using precision machining for resurfacing and produce projections on Col. 8, Lines 42-45, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the manufacturing process of Takami et al. with wherein the rim is formed by the deep-drawing operation at the same time as the first peripheral region on the edge side of the flange and around the passage opening is being formed, in order to produce the cylinder liner within engineering

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parameters (i.e. dimensions and structural integrity, Col. 5, Lines 8-14 from Takami et al.)

With regards to claim 11, the patent to Takami et al. discloses all the limitations of the claimed subject matter except positively disclosing the shoulder and the individual flange are stamped at the corresponding location, and in that the flange material which has been displaced by the stamping operation and projects laterally beyond the edge of the flange is cut off.

Since Takami et al. explicitly states using numerous manufacturing techniques, including cold isostatic pressing on Col. 5, Lines 1-3 in addition to cutting on Col. 5, Lines 7-9 and further using precision machining for resurfacing and produce projections on Col. 8, Lines 42-45, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the manufacturing process of Takami et al. with wherein the shoulder and the individual flange are stamped at the corresponding location, and in that the flange material which has been displaced by the stamping operation and projects laterally beyond the edge of the flange is cut off, in order to produce the cylinder liner within engineering parameters (i.e. dimensions and structural integrity, Col. 5, Lines 8-14 from Takami et al.)

Conclusion

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Katsunori et al. (US Patent No. 7,278,382) shows the current state of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEITH COLEMAN whose telephone number is (571)270-3516. The examiner can normally be reached on 5:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Cronin can be reached on (571)272-4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KAC
/K. C./
Examiner, Art Unit 3747


STEPHEN K. CRONIN
SUPERVISORY PATENT EXAMINER

